FEATURE REPORT: DEVELOPMENTS IN CONTINUING CARE – SEE PAGE 18

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CANADIAN
Healthcare Technology

CANADA'S MAGAZINE FOR MANAGERS AND USERS OF INFORMATION SYSTEMS IN HEALTHCARE | VOL. 27, NO. 6 | SEPTEMBER 2022

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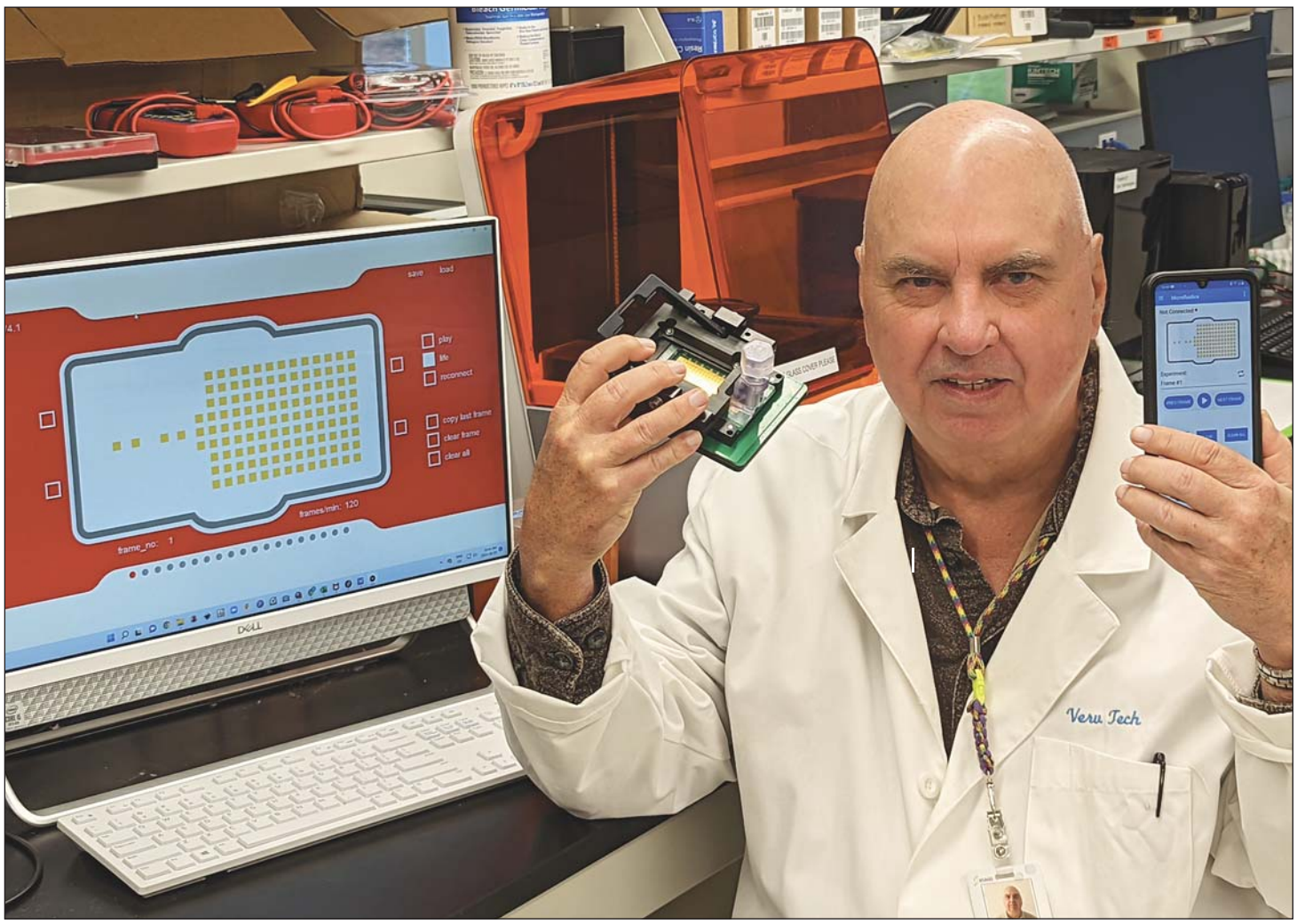

PHOTO: VERV TECHNOLOGIES

Sudbury company devises home blood-test kit

Led by founder Jeff Sutton (pictured), Verv Technologies has raised $3.8 million from a British investor to continue developing its home blood testing kit. The system uses a drop of blood from a finger prick, a disposable test cartridge and a Bluetooth-enabled analyzer to transmit test results to a smartphone app in 15 minutes. The company operates a lab at the state-of-the-art Health Sciences North research facility. **SEE STORY ON PAGE 4.**

MySE Life app expands to include personal support staff

BY SARAH QUADRI

For registered nurse Barb Gerryts, the MySE Life app is transforming the way she delivers home and community care; and she's savouring every second – in real time.

Last year, with her help, SE Health, a not-for-profit social enterprise and one of Canada's largest healthcare organizations, designed and implemented the MySE Life app.

It's a one-of-a-kind mobile application and digital platform for direct care providers that's empowering staff while giving them the tools they need to deliver high-quality and safe care.

"Today, I can't live without the MySE Life app, it has become such an integral part of my workday," said Gerryts, who delivers care in the Niagara region and is part of the original co-design team that created the app from the ground up early in the pandemic.

> **Along with nursing leaders, the MySE Life app is developed by personal support care champions.**

"I am constantly checking the app and sending the self-directed schedule notifications to our coordinators," she said.

Since implementing MySE Life last summer, SE Health has expanded the app to include personal support staff across the organization and has established a personal support care team of champions. Their insights, along with those of the nursing leaders, continue to drive the app's features and design.

SE Health calls this initiative, 'for direct care providers, by direct providers,' and it's part of the organization's People Everything Program that, together with staff involvement, identifies, understands, and implements specific actions to enhance the employee experience.

"This is the best experience of voicing our opinions individually and collectively and

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SE Health expands MySE Life app to include personal support staff

CONTINUED FROM PAGE 1

seeing it happen," said Grace Mansfield, a longtime and dedicated SE Health Personal Support Worker (PSW) in the Hamilton, Ont., region. "Sometimes, as PSWs, we feel alone and it's nice to know that our leaders and the organization are listening and including us in creating positive change."

Staff feel happy about spending more time caring for clients because they can complete most of their role-related tasks in the application.

They are also grateful for the opportunity to work alongside other SE Health teams on a multi-year roadmap to make this digital platform the best it can be. Their ongoing input ensures that the MySE Life app remains relevant and that it's optimizing the right areas.

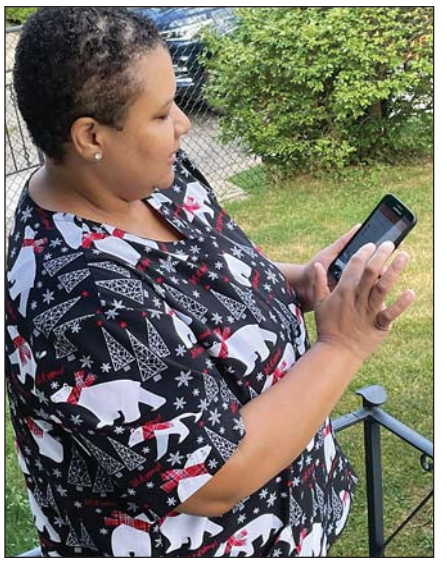
"This is the quintessential, consolidated experience where a cloud-enabled mobile application is connecting multiple systems to provide a consistent, cohesive experience," said Imtiaz Ahmed, vice president, Digital Experience and Enablement at SE Health. "While still using legacy systems we are able to provide a next generation experience for our direct care providers. The best part: they are in the driver's seat telling us what works for them."

"The MySE Life app is a breath of fresh air that is allowing me to focus my extra time on client care," said Breanne Paquette, one of SE Health's Personal Support champions in Windsor, Ont. "All the important information that I need to know about my clients is right there in the app, including their client number, diagnosis and medical and visit history. I feel like I have everything I need to do my job and keep everyone safe in any situation."

"We are prioritizing the experience for our people," said Candace Moore, SE Health's digital product lead who is playing a key role by connecting the digital, clinical, and administrative teams to collect feedback and ensure seamless implementation.

"We are making decisions on features and ensuring the UX and the UI (design) are well thought out so that it's a clean experience. Staff aren't bouncing around from one side of the app to the other, it's interconnected and it promotes their 'day in the life'," she added.

In the last year, that experience continues to get even better for direct care providers. Updates to client care schedules and virtual care delivery options are only few taps away, which give nurses the opportunity to manage all aspects of client care proactively and collaborate more effectively with their team through the app.



Clauselle Slack, Personal Support Leader

"The nurses also have better insights about their personal journeys," noted Ahmed. "A feature called "My Metrics" provides a one-stop shop to view the direct care provider's activities related to their performance and other measures. Having the on-demand ability to view the metrics further improves their autonomy so they don't have to wait for information from team members or their manager."

On time notifications is another valuable feature in the app. Direct care providers are always on the move, travelling from one client home to the next and across communities and receiving timely updates is crucial for awareness and planning. Automatic notifications on the app allow them to quickly view important changes to client schedules or flag administrative actions that may need immediate attention.

In all the app's features, safety comes first – for both patients and staff. Employee and client screening tools introduced during the pandemic are built into MySE Life and the app makes the process smarter by consolidating the screeners together. Every day, the screeners automatically display in the app with a red line that turns teal once the screeners are completed.

"It's a one-stop shop that's giving us the platform to provide our staff with the 360-degree view of their clients – and then some," said SE Health's Clauselle Slack, a personal support leader in the Greater Toronto Area who is passionate about the holistic client care focus in the Home Opportunity People Empowerment (H.O.P.E.) Approach to Care – the primary model of care at SE Health.

"The app is helping personal support staff to become more integrated into the model of care, ensuring we have all the information we need about the client before we enter their home," said Slack. "It's also helping us to train new staff with its user-friendly interface and promote personalization so that it works for us the way we need it to."

"I'm a visual learner so being part of a co-design leadership group where we are involved in tailoring this app to our specific needs is incredible," said Monika Janeczek, an Ottawa, Ontario-based former airline employee turned PSW (in the first wave of COVID-19), who is thriving with the opportunities for growth at SE Health and refers to working in home-care as a "calling."

"It was life-changing moving from four applications to two and it is also nice to hear the feedback from the nurses, about their experience. It's a great feeling to work for an employer who is committing to get-

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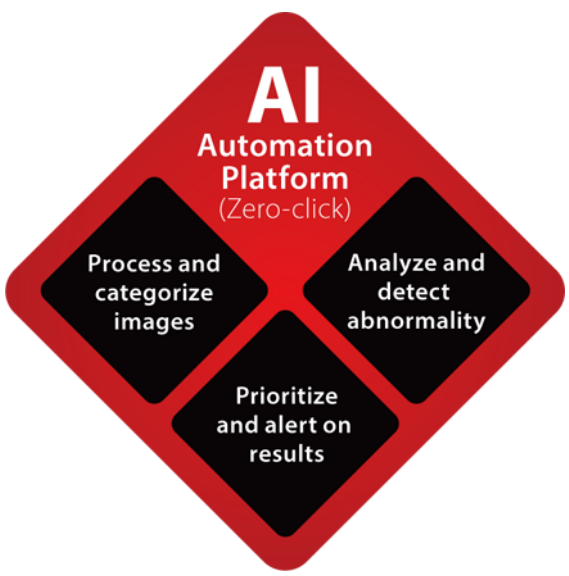

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Canadians honoured by AMIA for leadership in clinical informatics

BY NORM TOLLINSKY

Two Canadian informatics leaders were inducted as Fellows of the American Medical Informatics Association (AMIA) at its annual Clinical Informatics Conference in Houston, May 22 to 24. Dr. Karim Jessa, chief medical informatics officer at Toronto's Hospital for Sick Children (SickKids) and Glynda Rees, an educator in the Bachelor of Nursing program at the British Colombia Institute of Technology, were recognized for their contributions to the development and application of informatics as a critical discipline in today's data-driven healthcare system.

Both trained as healthcare professionals – Dr. Jessa as an emergency doc, Rees as a critical care nurse – and found their way into informatics through interest as opposed to any formal academic training.

"Unlike the United States, Canada doesn't have a formal clinical informatics residency program or specialty, so I think we have some catching up to do," said Dr. Jessa, who earned his MD from the University of Toronto and completed his residency in emergency medicine at McGill University in 1996.

As Sick Kids CMIO, Dr. Jessa is responsible for strategy, evaluation, planning and implementation of information systems, ensuring they're designed "to make it easier to do the right thing and harder to do the wrong thing," he remarked.

Rees, who graduated with a Bachelor of Nursing degree from the University of Cape Town, South Africa, became interested in informatics while completing her Masters degree from the University of British Colombia.

A past president of the Canadian Nursing Informatics Association, Rees is currently BCIT's program lead for an Advanced Certificate in Digital Health, a 24-credit online course aimed at healthcare clinicians interested in moving into clinical informatics roles. The certificate can be earned on a part-time basis or as part of a career pathway toward a Masters degree. The first intake of students is planned for spring 2023.

Both AMIA fellows date their passion for information systems to the dawn of the digital technology revolution. "I started off making notes in a little black book and graduated from there to a 256K Sharp organizer," recalled Dr. Jessa. "I used it to make notes about medications and dosages. From there, I graduated to a Palm Pilot, a Handspring Visor and a BlackBerry Messenger."

However, it was his role as a super-user during the introduction of a Cerner hospital information system at King Faisal Specialist Hospital in Saudi Arabia that really propelled him toward a career in informatics. Following his return to Canada, he served as director of medical informatics at Mackenzie Health in Richmond Hill, then joined SickKids as CMIO in 2013.

Glynda Rees evaluated the use of Palm Pilots and other devices at the bedside

Dr. Karim Jessa

Glynda Rees

while working on her Master's degree at UBC and was introduced to informatics by her Master's supervisor, Dr. Leanne Currie.

Among Dr. Jessa's accomplishments at Sick Kids was the hospital's qualification for the Healthcare Information Management Systems Society's (HIMSS) Electronic Medical Record Adoption Model (EMRAM) Stage 7 status in February of this year. The highest level of EMR adoption recognized by HIMSS, "Stage 7 EMRAM essentially means you're fully electronic," said Dr. Jessa.

SickKids and the Children's Hospital of Eastern Ontario (CHEO) in Ottawa, which developed and share a common Epic health information system, are the first pediatric hospitals in Canada to achieve Stage 7 EMRAM, and the only hospitals in Canada to achieve EMRAM Stage 7 for both inpatient and outpatient care. Four other Canadian healthcare organizations are certified at this level for either inpatient or outpatient care.

SickKids, like other organizations, is also on a journey to leverage data through artificial intelligence and machine learning to improve outcomes and patient care in the ER and ICU. The hospital has several pilot programs in operation to predict deterioration, sepsis or risk of death to ensure timely interventions.

A leading-edge information system helped SickKids cope with the challenges of the global COVID-19 pandemic. "I don't know how we would have managed without our Epic hospital information system, because it allowed us to pivot from in-person to virtual care very quickly," said Dr. Jessa.

Using SickKids' online symptom checker, patients were directed either to urgent care, a virtual care visit, the ER or their family doctor.

One of Glynda Rees' interests is the development of an educational electronic health record system and the integration of informatics in undergraduate nursing and other allied healthcare programs.

She has also developed through the Canadian Association of Schools of Nursing a set of informatics competencies for inclusion in undergraduate nursing programs. An educational EHR is important, she said, "because if you're just talking about it and not actually practising with an electronic health record, it's not as meaningful."

Sudbury firm developing at-home testing attracts $3.8 million in funding

BY NORM TOLLINSKY

Verv Technologies, a Sudbury, Ont., healthtech startup, has secured $3.8 million in seed funding from UK-based Randox Laboratories to advance the development of its home blood testing kit.

The system uses a drop of blood from a finger prick, a disposable test cartridge and a Bluetooth-enabled Vi analyzer to transmit test results to a smartphone app in 15 minutes.

"We are currently able to test for cholesterol and we're working with Toronto Metropolitan University (formerly Ryerson) on a test for Vitamin D," said Verv Technologies' founder and president Jeff Sutton. "We're now moving into developing more tests. For example, we envision doing hormones and C-reactive proteins (indicative of acute inflammation)."

The company operates a lab at the state-of-the-art Health Sciences North Research Facility in Sudbury and has 12 employees, including biochemists and biomedical engineers.

The accuracy of the tests for cholesterol have been found to be "as good as or better than results from point-of-care devices on the market," said Sutton.

Verv's blood analysis system separates the plasma from whole blood, calibrates the sample and uses digital microfluidics, electrochemistry technologies and freeze-dried reagents to process the sample and produce the test results.

Sutton, who has a background in applied physics and information technology, served as director of IT at both Laurentian University and Sudbury Regional Hospital (now Health Sciences North) prior to founding Verv Technologies in 2012.

"We soon ran into the problem that most people who think of doing microfluidic tests in the home run into, which is that there's no easy way of separating plasma from whole blood," said Sutton. "In central labs, centrifuges do it, but you can't put a centrifuge in someone's home."

Sutton came up with a solution in 2019 and has patents pending in Canada, the U.S., Europe, India and China. "It gives us a unique way to separate plasma in a passive system that then allows us to do all sorts of tests."

Verv Technologies is initially targeting health-conscious consumers who want to maintain and manage their health – "the same consumers who buy Fitbits and Apple cardio watches," said Sutton. "We think the consumer market in the U.S. is enormous and our investors see that, too." Using the Verv smartphone app, consumers will be able to track their results over time.

Sutton sees Verv Technologies' main competition as dried blood spot testing by companies like Everlywell that require consumers to send their samples through the mail and wait one or two weeks for the results.

While its immediate target is home use, "eventually, we have no doubt that we'll also end up serving the point-of-care market," said Sutton. "In fact, we're already working with McMaster University in Hamilton to put a PSA test they developed on our device. We'll also be able to do urine and saliva with our system, but right now we're working on blood."

Verv Technologies' Jeff Sutton

Sutton acknowledges encountering some skepticism due to the demise of Theranos, the now defunct blood testing company, whose former CEO, Elizabeth Holmes was convicted of criminal fraud, but points to the defunct company's "$8 to $9 billion valuation" as indicative of the interest in alternatives to conventional blood testing technology.

He cites bottlenecks associated with centralized blood testing for COVID-19 and the resulting reliance on rapid testing kits for home use as additional evidence of the need for alternative blood testing technologies.

Verv Technologies has had previous injections of funding, including $140,000 from the National Research Council of Canada, $500,000 from the Northern Ontario Heritage Fund Corporation and $250,000 from the Sudbury Catalyst Fund, but the $3.8 million from Randox Laboratories is special, noted Sutton.

"It's our biggest raise to date and it's from a company in the industry that looked at our technology and really liked it."

Randox Laboratories is a global leader in in-vitro diagnostics and develops diagnostic solutions for hospitals, clinical, research and molecular labs, food testing, forensic toxicology and veterinary labs in more than 145 countries.

Peter Fitzgerald, founder and managing director of Randox will join the Verv Technologies' board.

The injection of capital will be used to hire an engineering firm to take the Vi prototype and design a device for the consumer environment. It will also be used to develop more tests and help navigate the regulatory process.

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Real-time locating system enables staff to find equipment quickly

BY NORM TOLLINSKY

Canadian hospital teams face challenges managing the medical equipment they need to deliver world class patient care. What if a tool could contribute to both improving patient care as well as improving staff satisfaction and efficiency? The deployment of GE Healthcare's wireless asset tracking technology earlier this year, has helped Orillia's Soldiers' Memorial Hospital (OSMH) in finding wheelchairs, bladder scanners, and dozens of other items in mere minutes, allowing more time to be spent on quality patient care.

For example, it's important to have wheelchairs available for patient use in the hospital lobby and ER entrance, but all too often they would wind up in units throughout the six-storey building. There was no way of finding them other than sending out an email asking staff to report their whereabouts or dispatching a search party to locate them, explained Tom Roberts, the hospital's chief financial officer and executive vice-president of corporate services.

Now with the deployment of GE Encompass, a Bluetooth-enabled real-time, location system (RTLS), hospital staff simply enter the name of the item they're looking for in the web application to find out where it is and how long it has been there. If it hasn't been moved in hours or days, chances are it's sitting in a corner or on a shelf and available for use.

Jo-Anne Chandler, the hospital's director of materials management, found that it took 40 minutes to locate and retrieve an item in a test using the traditional method of calling each department. Using GE's Encompass, it took three minutes.

Real-time asset tracking allows hospital staff to spend less time looking for equipment and more time with patients. It also gives hospital administration an accurate accounting of inventory and utilization, preventing procurement of new equipment if current supplies are adequate and underutilized.

The application identifies when preventive maintenance was performed and when it's next due for maintenance. It also identifies the item's date of acquisition, allowing hospital administration to plan for replacement of equipment due for retirement.

In April 2021 during the COVID pandemic, for example, the Ontario government asked hospitals outside the Greater Toronto Area, including Soldiers' Memorial in Orillia, to open more ICU beds to relieve the pressure on Toronto's overcrowded hospitals, recalled Brian McWilliams, general manager, commercial, for GE Healthcare Canada.

In preparation for the anticipated transfer of patients, Chandler, the hospital's materials management director, received a request to order 40 infusion pumps. However, after consulting GE Encompass, she was able to confirm the hospital already had 24 pumps available, requiring the purchase of only 16.

"That allowed the hospital to open the new ICU beds in 48 hours instead of a couple of weeks, and saved them $83,000," said McWilliams.

OSMH has approximately 1,000 items tagged with Bluetooth low-energy tracking beacons communicating with wireless routers throughout the hospital. Among them are ventilators, vital sign monitors, CPAPs and stretchers. The real-time location data is stored in the cloud and available to hospital staff throughout the hospital on computers, smartphones and tablets.

Encompass was released by GE Healthcare in the United States in 2017 and is only now being rolled out in Canada and the rest of the world. Soldiers' Memorial Hospital in Orillia, a 198-bed community hospital that's 145 kilometres north of Toronto, is the first healthcare facility in Canada to deploy the solution.

"Encompass is less onerous to implement than previous generation location systems because you don't have to open the ceilings or drill into the walls of a hospital to install cable," said McWilliams.

OSMH's Shannon Gray shows tracking devices.

Previous generation systems were also more capital intensive because hospitals used capital dollars to purchase them upfront. With Encompass, they're able to use operating dollars by paying for them using the software as a service subscription model.

Encompass can be installed in a matter of days instead of months and costs up to 60 percent less than traditional cabled location tracking systems, according to GE Healthcare. Additionally, there is no requirement for separate, dedicated on-site application and database servers for the hospital to maintain and no dedicated software to update.

"That means less involvement required by hospital IT resources, which are always quite stretched," said McWilliams.

The high upfront cost and the increased complexity associated with the installation of cabled systems have limited the market penetration of real-time location systems to between 15 and 20 percent, according to GE Healthcare.

"They are most common in new builds when included in architectural plans and much less common in existing and older hospitals, but I expect that to change in the next number of years with the availability of wireless systems payable by subscription," said McWilliams.

How did Soldiers' Memorial in Orillia become the first hospital in Canada to acquire GE Healthcare's Encompass solution?

"We're very fortunate," said Roberts, the hospital's chief financial officer and executive vice-president of corporate services. "We've had a longstanding relationship with GE going back 40 years, so when they were looking to bring this solution to the Canadian market, they asked if we would be interested in supporting a pilot deployment.

"We're in a bit of a sweet spot as an organization. We're one of the largest medium-sized hospitals in Ontario, so we have the expertise to take on leading-edge technology projects. We're also small enough as an organization to be nimble, so it's the characteristics of the organization as well as the trusted partnership of 40 years."

GE Healthcare is currently in discussions with several other Canadian hospitals interested in the Encompass solution.

On-demand forms printing at Halton Healthcare reduces use of paper

OAKVILLE, ONT. – Halton Healthcare, a group of three hospitals just west of Toronto, has been able to eliminate its print shop through the use of on-demand forms printing. This has resulted in a significant reduction in costs, primarily through the decreased use of paper and labels – much of which was wasted. Now, hospital staff and professionals print what's needed as they need it.

Before the print-on-demand solution, provided by Interlace Health, Halton Healthcare employees would order large quantities of forms and labels.

"They'd request 3,000 to 4,000 forms at a time," said Leovee Reyes, applications analyst, information and communications technology, at Halton Healthcare. "Often, they wouldn't use a lot of them – or any."

That's because once the forms had been printed, the Ministry of Health may have requested a change to the form, making it obsolete.

When that occurred, "They would all be thrown out," said Reyes.

Moreover, printing and attaching labels was an expensive and laborious task. Patient labels were often needed, and manual labour was required to attach them. If a change to the form was demanded, and the labels had already been attached, the team would have to start over again.

Revisions from the health ministry were only one type of change that could throw things out of whack. Human error could also occur, with mistakes appearing on a form. These forms would also need to be reprinted.

Finally, there was also a propensity to simply print more forms and labels than needed at any one time.

"We have other hospital customers who have printed boxes and boxes of forms, only to throw them all out before using even 10 percent of them," commented Dessiree Paoli, director of product marketing at Interlace Health.

Interlace Health and Halton Healthcare held a webinar in May in which they outlined how the Forms on Demand Solution has improved forms management at the hospital.

The change to the computerized solution occurred several years ago with the construction of a new Halton Healthcare facility in Oakville, Ontario. At that time, the decision was made to reduce stockpiling of paper as much as possible.

The solution from Interlace was introduced, enabling a centralized system of managing forms. The database made updating forms much easier and printing out the forms, as needed, meant that the most recent ones were being used.

> **Using the system from Interlace Health, Halton's staff can print forms and labels in smaller quantities, as needed.**

"There were fewer old versions floating around," said Reyes.

Moreover, the forms could be directed to a printer at the unit at which the user was working. So, if a staff member or clinician was located at a different area of the hospital or different unit, the forms could be printed right on the clinic floor. It became much faster to obtain up-to-date forms, without the need for delivery.

In addition, patient labels could be automatically included in the forms, eliminating the need to manually attach them.

Paoli commented that in other hospitals using Interlace, physicians have appreciated the ability to auto-populate forms, so they don't have to fill them in. "Patient, too, don't like to fill out forms," she noted.

The forms database is used at Halton Healthcare for a wide range of documents, including things like COVID-19 packages, patient instructions and order sets, all of which may be regularly updated. Users can also note their favourites, so they can quickly access and print the forms they use the most.

As well, the system can be integrated into the electronic patient records system used by the hospital. At Halton Healthcare, for example, Meditech is used. When working with a patient, an administrator or clinician can pull up the patient's record and print out the appropriate form – with the patient's information embedded in the form.

Reyes said the automated forms solution has made a definite difference at the hospital: "Forms are more accurate and up to date – and we're using far less paper."

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Digital platform reduces the administrative burden on specialists

BY NORM TOLLINSKY

Electronic medical records (EMRs) have revolutionized healthcare, but they also have their limitations and that has created an opportunity for companies like Ottawa-based Auxita.

A good example is the administrative burden on rheumatologists and other specialists when prescribing biologics and biosimilars through patient support programs (PSPs) operated by pharmaceutical companies and third parties.

Costly drugs such as biologic medications used to treat rheumatoid arthritis, Crohn's disease and other conditions are game changers. However, they subject specialists to a blizzard of hard-copy forms going back and forth by fax between themselves and other physicians, pharmaceutical companies, patients and private insurers.

Companies like Auxita that add functionality to physician EMRs are important because the EMR companies "don't have the bandwidth to optimize the software to allow physicians to deliver efficient and streamlined care," said Dr. Vandana Ahluwalia, a rheumatologist practising in Brampton, Ont.

Biologics are used by rheumatologists to treat autoimmune diseases like rheumatoid arthritis, psoriatic arthritis and ankylosing spondylitis, but are also prescribed by dermatologists and gastroenterologists, and they are starting to be used by neurologists to treat multiple sclerosis, said Dr. Ahluwalia.

They are very expensive drugs, costing tens of thousands of dollars per patient annually, and only prescribed when other less expensive drugs aren't effective. Ontario covers biologics and biosimilars for seniors over the age of 65 and anyone under 25, leaving everyone else to rely on either private insurance or the income-based Trillium Drug Plan.

Ontario's Ministry of Health has its own web-based forms that physicians use to apply for coverage, but processing prescriptions for patients covered by private payers has been paper-based, time-consuming and maddeningly inefficient.

Auxita's software integrates with EMRs, maintains an up-to-date library of enrolment and prior authorization forms, supports digital signatures, does away with faxing and perhaps, most important, provides physicians with a dashboard highlighting the progress of the patient journey.

In the absence of Auxita, "We don't know if the PSP received the form," complained Dr. Ahluwalia. "We don't know if the patient has been contacted. We don't know when the patient started taking the medication. This is why we need Auxita."

Dr. Vandana Ahluwalia, Rheumatologist

Maintaining an up-to-date library of the forms is one of the key elements of the Auxita solution because the forms constantly change and there are always new ones when patents expire and generic drug manufacturers enter the market with biosimilars.

"A leading biologic patent recently expired, for example, and now there are eight biosimilars, each with its own form and process, so it's crazy," complained Dr. Ahluwalia.

Auxita solves the problem by working with the pharmaceutical companies and third parties managing the PSPs to digitize the entire process from enrolment to prior authorization.

One of the major attractions of Auxita is that its costs are covered by their partners and therefore free of charge to physicians. Everyone benefits from the efficiencies of the digitized process and the information stays secure and isn't shared without each party's consent.

Auxita integrates with a number of EMRs and is continually working on new integrations.

The company also has a web-based version that is available to specialists using non-integrated EMRs and was due to release an update in July that synchs patient demographics with Auxita even without an EMR integration.

Auxita was founded in 2015 as a diabetes management platform able to capture and interpret data from an EMR and provide primary care physicians with treatment guidelines. From there, Auxita built a primary care patient dashboard that provides primary care physicians with an overview of their patient's health issues and any alerts requiring follow-up.

Around-the-clock medication management enhanced by telepharmacy

A growing number of hospitals across Canada have been embracing telepharmacy services as they transition to Computer Prescriber Order Entry (CPOE), ensuring most new medication orders are reviewed for clinical appropriateness by a pharmacist before being administered to the patient. In 2021 alone, leveraging the HealthPRO North West Telepharmacy contract, close to 20 hospitals in Ontario were able to show they had around the clock review of medication orders by a pharmacist.

Many of the hospitals securing 24/7 telepharmacy services have recently implemented a new Hospital Information System (HIS) with CPOE capabilities, which eliminates the delay of new medication orders being received by the pharmacy system.

"HealthPRO is pleased to be able to make this extremely diverse and flexible Telepharmacy and Professional Services contract available to member hospitals," said Patricia Macgregor, clinical director of Pharmacy Innovation at HealthPRO. "Each member is able to access a wide array of services, tailored to their needs which are provided by an experienced team of pharmacists, including specialty pharmacists covering all hospital clinical care programs."

Accreditation Canada has a growing focus on 24/7 pharmacy services for medication management and hospitals are realizing that telepharmacy services are a cost effective and feasible way to achieve compliance with Accreditation Canada as well as enhance patient care and patient safety. The review of orders during timelines the hospital pharmacy is closed, such as evenings, overnight and weekends, not only provides optimal patient care during the off hours, but also eliminates the backlog of orders that normally await the day shift, delaying the start to new challenges of the next day.

"Afterhours telepharmacy verification has allowed us to keep one closed-loop medication workflow for nursing, providing them with assurance that they are administering the appropriate medication for their patient. It also has a huge positive effect on your staff pharmacists' quality of life," said Joe Dagenais, director of Pharmacy, Queensway Carlton Hospital.

When transitioning to a CPOE enabled Hospital Information system (HIS), hospitals are required not only to consider how to ensure a 24/7 pharmacist medication order review process will exist in the new environment, but also how to transcribe tens of thousands of medication orders from the old HIS into the new HIS – a very labour-intensive process referred to as 'cut-over'. Fortunately, Northwest Telepharmacy Solutions (NTS) has experience in this area and, in the second half of 2021 alone, was able to support half a dozen hospitals with the cut-over process.

"We have been able to help majority of the hospitals which have had to face the cut-over process prior to go-live in the last 10 years from Southwestern Ontario to the Ottawa Valley area to Northern Ontario," explained Sammu Dhaliwall, senior manager of Business Development of NTS. "Our experience with the process and timeline pressures has been something hospitals are able to rely on to help them through the transition."

"The addition of Telepharmacy Services during our recent CPOE implementation and HIS system cutover was extremely valuable. The telepharmacy team works cohesively with our internal informatics leads, ensuring the communication was up to date and in real time," said Shelley Dorazio, Scarborough Health Network. "The telepharmacy team continued to provide post go-live support during the initial month. It took a small army of committed pharmacists to make our CPOE implementation successful!"

Night reviews of medications not only helps patients, but it also eliminates the backlog of orders awaiting the day shift.

With NTS telepharmacists available around the clock to review new medication orders, the team is helping extend the hospital pharmacy's ability to provide medication management services beyond their usual hours. This includes collaborating with the patient, physician and nursing staff at all hours.

"Being able to provide a patient-centered care service to optimize safe, effective, and appropriate drug therapy for patients prior to receiving the medication has been the core tenet of why we have dedicated resources and time to growing our service offerings," said Northwest Telepharmacy Solutions' director and founder, Kevin McDonald.

"During the recent pandemic alone, we have introduced unique services such as the Virtual Medication Reconciliation on Discharge (VMRD) program, patient screening for specific COVID treatment, the tele-ICU pharmacist remote critical care support program, and the rollout of PowerGridRx – the only medication order management software compatible with both scanned and CPOE orders – with a pharmacist driven dashboard to focus on medication management," said Dhaliwal.

As hospitals increasingly care for more complex patients, the demand for enhanced medication management and extended hours pharmacy services continues to grow. HealthPRO and NTS are pleased to be able to meet members needs through this diverse and flexible Telepharmacy and Professional Services contract.

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Technology enables ageing Canadians to live more independent lives

BY JUGGY SIHOTA

With National Seniors' Day just around the corner (October 1), it's an excellent time to reflect on how we can collectively better support one of Canada's most vulnerable demographics – those over 65 years old. This group, expected to grow by 68 percent over the next 20 years, requires more healthcare support than any other in Canada. While hospitals and care facilities meet some of their needs, providing older people with high-quality healthcare support outside of these facilities can go a long way in empowering them to live more independently.

That is a prime focus for companies like TELUS Health, as we reimagine how care is delivered and experienced by older Canadians. When ageing, they may experience limited mobility, increased social isolation and often need more support at home. Digital technology and virtual healthcare services are well suited to fill those needs, with more accessible options and easier connections to health professionals that will help them better control their health journey.

Leveraging digital health technology: Designing the right tools for the right job is key, especially when it comes to serving the growing needs of older Canadians looking to proactively manage their own wellness and stay as active as they can. Everyone should have access to the best possible care, wherever and whenever it's needed, regardless of age, status, socioeconomic situation or location. But it can't be done alone.

Partnerships with leading Canadian research think tanks like Toronto Metropolitan University's National Institute on Ageing (NIA), focused on the experiences and needs of ageing Canadians, help us enhance our knowledge of the challenges faced by this age group. It is through collaboration with organizations like the NIA that we gain crucial insights on how and why technologies can better support independent ageing.

Statistical realities show the need to reorient thinking towards virtual tools, especially for ageing Canadians. Not only has there been a significant shift towards digital technology due to the COVID-19 pandemic, but we also note a growing trend of Internet and smartphone use among Canadians aged 65+. A recent AGE-WELL poll conducted by Environics Research in July 2020 shows that two-thirds (65 percent) of Canadians aged 65 and older now own a smartphone, compared to 58 percent in 2019, and 83 percent of them use it daily. In 2022, we can be certain that this number has continued to rise.

Filling the gap with digital technology and virtual care: Virtual care is a broad term that encompasses many easily accessible digital services that allow two-way interaction between the patient and the health professional without being physically in the same room.

One such service available via smartphone app is TELUS Health Virtual Pharmacy. In addition to filling prescriptions online, the online service offers one-on-one video or phone consultations with a Canadian-licensed pharmacist about medications, side effects and/or lifestyle changes. No need to be a pro with technology; it just as easily allows others – adult children, grandchildren or caregivers – to refill medications and book appointments on the patient's behalf. This service is paired with MedPack, which organizes the patient's medications by date and time in individually-sealed packs to improve adherence, ideal for older people who take multiple medications on a regular basis.

The virtual medical consult is another service available through a smartphone. TELUS Health MyCare, a free app on your smartphone, offers virtual consultations with a locally licensed physician across Canada providing convenient and powerful options for older Canadians with mobility issues and especially for those in rural or remote communities with limited options.

Juggy Sihota, TELUS VP

Virtual services are excellent options for preventative care, but are not appropriate for emergencies, especially a slip-and-fall. That's where tools such as personal emergency response systems (PERS) take their place.

Unfortunately, there remains a significant disconnect between the availability of PERS and information getting to the patients who may need them. A recent MD Analytics Survey has shown that 89 percent of healthcare professionals (HCPs) are unlikely to discuss PERS unprompted because they don't know enough about them.

Considering that nearly one in three older Canadians experience a serious fall every year, it's crucial that healthcare professionals understand and proactively inform their patient about the tools that are available to them so they are better supported to live independently. As an example, TELUS LivingWell Companion is a wearable device that connects the user to specially trained operators when the device is activated for a health emergency, either manually, or automatically if the optional fall detection is activated. The service is available across Canada in multiple languages as an in-home or on-the-go device.

More and more people want to stay in their home as long as they can. Services such as Home Health Monitoring (HHM) is a good example that can support independent living and ageing in place. British Columbia Emergency Health Services (BCEHS) currently offers this service as part of a community paramedicine program that virtually connects paramedics and physicians with patients living with complex conditions like diabetes or hypertension.

Paramedics set up equipment in patients' homes and teach them to monitor their own blood pressure, blood glucose, or other data, which is then sent from a tablet to a community paramedic. The paramedic works with physicians, often far from the community, to monitor progress and make any necessary treatment changes.

There is still enormous room for technology to evolve as this age group grows. TELUS Health continues to drive its team to do its part in increasing access to healthcare and bringing it directly to Canadians of every generation. National Seniors' Day is a potent reminder of the importance of that work. To find out more, please visit: www.telushealth.com/forALL.

Juggy Sihota is Vice President, TELUS Health.

BRIA provides women with virtual care for reproductive mental health

BY ARIEL DALFEN, MD

My colleagues Bev Young, MD and Emily Kingdom, MBA, and I organized the launch of BRIA in the Spring of 2022. The goal is to offer virtual, seamless, integrated and comprehensive care for women struggling through life's reproductive transitions – while trying to conceive, during pregnancy and the postpartum period, and through perimenopause and beyond.

As experts in women's mental health, we dreamed of developing a "one-stop-shop" for women struggling with mental health issues, a place where they can have all their mental health needs met under one roof.

In meeting the need for these services using online technology, BRIA (www.betterbria.com) has become the first-of-its-kind virtual mental healthcare platform for women in Ontario.

At BRIA, our mission is to ensure that women – including gender diverse individuals who are struggling with mental health issues while trying to conceive, during pregnancy, postpartum, and during perimenopause – in Ontario have timely access to high quality mental healthcare across the reproductive life stages. Currently, the experts in this field are congregated in the downtown core of major cities across Canada, leaving most areas with little-to-no access to specialized services. As a result, a large population struggles with mental health issues at vulnerable times of life.

Most psychiatric care in academic centres is restricted to individuals in local catchment areas who obtain referrals from physicians who are affiliated with these specific hospitals. With a large number of patient referrals and a limited number of psychiatrists with specialty training in women's mental health, there is a bottleneck in the system which prolongs wait times.

Also, since patients must pay independently for most types of talk therapy or counselling, and there is not a clear way to find specialized therapists, the system can feel very fragmented and inaccessible as patients try to navigate it alone. The most effective mental healthcare consists of both talk therapy and medications, if needed, and the above systemic issues make this gold standard difficult to find for most people who are struggling.

At BRIA, we aim to create an efficient virtual solution that offers a trained Care Coordinator to triage patients and an array of mental health services, depending on a patient's symptoms and stressors.

When the pandemic hit, it became clear that we do not require a bricks-and-mortar clinic in order to provide optimal mental healthcare. Telemedicine has become a highly acceptable and reliable way to assess and treat mental health concerns and eliminates the need for patients to travel long distances. There are significant cost savings for patients as virtual care relieves the stress associated with time off work, travel and parking, and the need to arrange childcare. Virtual care is optimal for most women and it has become their preferred medium for therapy, even in a post-pandemic world.

The pandemic demonstrated that a bricks-and-mortar clinic is not required to provide optimal mental healthcare.

At BRIA, we offer an array of mental health services. Our Care Coordinator does an intake assessment to understand what a patient needs at a given point in time. Then, patients may be directed towards therapy – either individual, couples, or group counselling.

If needed, patients may be referred for a more in-depth assessment, including medication evaluation, with another mental health professional and a psychiatrist, or for a mid-life assessment, including hormone assessment, by an expert RN and a gynecologist.

BRIA experts offer experienced, parent-friendly and focused healthcare to support those who traditionally have challenges accessing a full suite of mental health and well-being services at these vulnerable stages. We also use measurement-based care to ensure that people are getting the care they need to address their concerns and that they are progressing.

BRIA MD services are all covered by OHIP. As is the case with therapies and non-MD health services in Ontario, people are required to use their insurance benefits or employee health benefits, or to pay directly for these services at BRIA. Most of our services are covered by popular insurance plans.

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AI algorithms tend to malfunction, a problem of 'drift', observers say

BY JERRY ZEIDENBERG

Imaging professionals are confident that artificial intelligence will continue to progress and take root in DI departments over the next few years. As Aijun Soin, a researcher at Stanford University puts it, there simply aren't enough radiologists to meet the coming demand for imaging; as a result, automated tools like AI will be needed to assist the radiologists.

However, Soin, speaking online at the recent Society for Imaging Informatics in Medicine (SIIM) conference, held in Kissimee, Fla., noted a growing problem with AI in radiology, which many other researchers and practitioners discussed, as well.

It's the problem of "drift" in AI and machine learning. That is, while the results of an AI algorithm may perform well for a few weeks or months, over time, the algorithm becomes much less accurate.

Even worse, after a time, the model may simply crash.

Soin said there are three factors that can contribute to AI drift.

First, there is the issue of equipment updates. The testing of an AI algorithm may be based on a particular scanner and software. But if the hardware or software changes, the algorithm may no longer function as it originally did.

Secondly, new imaging workflows may be implemented which also affect the functioning of the algorithm. In particular, a new technologist may work in a different way than the tech who originally operated things in testing mode.

Production results then differ from the way things were first done, resulting in another form of drift.

And finally, changes in the patient population and disease states can affect the model. The prime example, of course, is COVID. For systems collecting information about chest X-rays, for example, everything may have been working fine in 2019. But in early 2020, the system may not have been able to account for the large and unusual number of patients presenting with COVID and their chest-related pathologies.

Soin asserted that Stanford is currently running a project in this area, to analyze and measure drift in chest X-rays that make use of AI. The project, CheXstray, in collaboration with Microsoft, is working with three sources of drift evaluation inputs: DICOM metadata, image appearance and model outputs.

For his part, Anant Madabhushi, PhD, a high-profile AI researcher at Case Western Reserve University, in Cleveland (who mentioned that he's currently transitioning to Emory University, in Atlanta, Ga.), offered an example of this very problem.

In 2018, a team at Case Western developed an algorithm that looks at endomyocardial biopsies – using slide images – to determine whether the patients had evidence of heart failure.

"We had two cardiac pathologists look at the exact same test set and come up with predictions of whether there was heart failure or not," said Dr. Madabhushi. Their findings were compared with those of the AI algorithm.

"The Deep Learning network was 97 percent accurate, and in comparison, the pathologists had an accuracy rate of 74 percent and 73 percent respectively."

"We were thrilled to bits and reached out to our marketing department. They ran a story, and the story got a lot of attention," said Dr. Madabhushi.

Some time afterwards, the Case Western team obtained another set of cardiac images and ran the heart-failure algorithm on those cases.

Dr. Anant Madadbushi, Case Western Reserve U.

Strangely, the accuracy rate dropped from 97 percent to 75 percent. The team was mystified.

They worked for four months to determine what had happened. It turned out that between the first and second batch of testing, an automated software upgrade to the slide scanner had been made.

"That changed the images enough to affect the way the algorithm interpreted the images," said Dr. Madabhushi.

It was a case of AI drift. And in Dr. Madabhushi's opinion, "It's a cautionary tale. We've got to stop trusting the black box for high-stakes decisions. You have to be very careful."

As a corrective measure for AI drift, the American College of Radiologists (ACR) has launched a project called Assess-AI.

Speaking at the SIIM session, Dr. Bibb Allen, a radiologist and chief medical officer of the ACR's Data Science Institute, asserted that "AI models degrade over time, and we can actually document it."

Like Stanford's Soin, he said the shifts are caused by naturally occurring changes in local data and the imaging environment.

"It could occur from new imaging equipment or changes in patient demographics," said Dr. Allen.

The ACR, he said, is now working with the RSNA on a common language for describing the issues involved in AI drift. These include demographics, modalities, exam parameters and exam specifics.

Using a tool called ACR-Connect, the organization can link its registry to hospitals and clinics to collect the necessary information. Of the utmost importance is the incidence of false positives and false negatives; after identifying the occurrence of these, the next step is to analyze what caused them in the various AI algorithms.

The data and analysis, he said, can be used both by the sites and developers to improve their AI solutions. "We can have a national spread, and all of this data can go back to the developers, showing them where the model tends to break."

"They can then retrain for that."

"We think this is going to be a real opportunity for the developers and for the sites," said Dr. Allen.

No blame, no shame: a Canadian approach to continuous improvement

BY DAVID KOFF, MD

Errors in medicine remain a major factor of mortality in our healthcare systems. The famous 1999 Institute of Medicine report "To Err is Human" estimated that 98,000 people die each year from medical errors in the United States. And guess what? A subsequent study published in 2016 in the British Medical Journal found that in the United States more than double this number died every year, which is appalling as you would expect the situation would have significantly improved in the meantime.

In fact, it's probably the 98,000 figure that was far below the reality, as the higher number is related to a better reporting mechanism. In any case, it shows no improvement, which means that we don't really learn from our errors.

Applied to radiology, if we assume that the error rate is approximately three percent, out of the 1 billion radiology studies performed worldwide every year, there will be 30 million errors. Fortunately, not all will have adverse consequences thanks to the safety barriers described in the Swiss cheese model proposed by James Reason: our defenses are compared to cheese slices with holes, and failures happen when the holes are aligned.

But let us step back and try to understand why radiologists make errors and how Peer Learning can help us to improve our performances and limit the impact of our errors.

Based on the work of psychologist and economist Daniel Kahneman, for which he was awarded the Nobel Prize in 2002, there are two ways of thinking: fast and slow.

Type 1, fast thinking, uses heuristics or intuitive thought-processes to make rapid, almost reflexive decisions. A study we performed at McMaster called *Blink of an Eye* confirmed that in 60 percent of cases, radiologists were able to correctly diagnose an abnormality on a chest X-ray when presented to them for only 750 milliseconds!

Type 2, slow thinking, requires an analytical approach, slow, deliberate, and rational, which takes a significant amount of time but has more chances to yield a correct diagnosis.

In practice, we use a combination of both fast and slow thinking, keeping the door open to a number of cognitive biases, which reflect faulty reasoning and need to be recognized. We'll review briefly the most common biases encountered in radiology:

Inattentional Blindness (underreading) is the most common in 42 percent of cases: a finding is present on the image but is missed. This may be due to the unexpected nature or location of the finding, a lack of context information, distraction from phone calls, or reader fatigue. But often it is just simply missed.

Dr. David Koff

Satisfaction of Search, in 22 percent of cases, is explained by decreased vigilance for additional abnormalities once the first one has been found.

Satisfaction of Report, in six percent of cases, where an impression from the previous report is perpetuated in the new report, even if it is wrong.

Anchoring Bias in nine percent of cases where the radiologist remains fixed on the initial diagnosis even if there is new data invalidating this diagnosis.

Lack of Knowledge, interestingly, represents only three percent of errors.

So, what can we do to help radiologists to identify their blind spots and decrease the risk of errors?

The need to improve the quality of radiology reports was evidenced by the Cochrane report in 2011, after a large-scale review of two radiologists in BC. Similar highly publicized reviews in other provinces confirmed the need for improvement. The retrospective peer review system in place proved to be inefficient, perceived as punitive and just designed to meet accreditation requirements.

Health Quality Ontario and more recently the Canadian Association of Radiologists in its Peer Learning Guide, have recommended the cultural shift from Peer Review to Peer Learning. So, what is Peer Learning? It is a continuous quality improvement (CQI) initiative focused on life-long learning based on the spirit of Just Culture. Peer Learning promotes collaborative group learning, removes scoring and identifies errors by type and contributing factors, discussing why and how, rather than who.

The review is anonymous with no fear of punishment or medicolegal consequences. The process is prospective,

CONTINUED ON PAGE 19

How to deter cyber-attacks: The Ottawa Hospital outlines its best practices

Strong security software, sharing information with partners, and developing a culture of security and awareness among employees are all key components.

BY PETER JONES

Today, cybersecurity is one of the most vital concerns for organizations across all industries as they embrace modern technology and digital transformation. For healthcare organizations specifically, it can be a challenge to balance innovation with the compliance requirements necessary to protect patient information and sensitive data.

We have seen complete digitization of hospital information systems such as EHRs, e-prescribing solutions, practice management support systems and radiology information networks. In addition, at risk are thousands of devices that comprise the Internet of Things, like smart elevators, smart heating, ventilation and air conditioning (HVAC) and remote patient monitoring devices. Which is why a robust cyber-defense plan is critical to protecting the confidentiality, integrity and availability of patient information.

Since the onset of the pandemic, cyber criminals have homed in on this sector and are taking advantage of these modern access points. If the right technology isn't leveraged, cyberattacks can have a lasting impact and impede the important work of our healthcare providers.

In Ontario, the provincial government is conducting a pilot to standardize some core cyber capabilities, termed the "Regional Security Operations Centre (RSOC)". This initiative, funded by Ontario Health, allows organizations to benefit from IT resources, technology and safeguards on a level not attainable as a standalone model. Core capabilities of the RSOC include the continuous monitoring and analysis of the security procedures of these institutions, defence against security breaches and active isolation and mitigation of security risks. This establishes a coordinated approach to the protection of digital health care information and infrastructure.

Microsoft Canada's Chief Security Officer, Kevin Magee, recently sat down with Jean-Claude Lemonde, Chief Information Security Officer at The Ottawa Hospital, an RSOC, to discuss their digital transformation and key learnings after recent ransomware attacks on multiple healthcare organizations across the province and the country. The discussion mentions common weak spots and attack entry ways in healthcare, such as legacy systems, inadequate IT staffing and complacency with security policy documentation. These are all gaps that Lemonde is tackling with technology, and he shared insights and strategies that ensure his organization continues to stay safe.

Leveraging the right technology: Lemonde credits its Microsoft Defender technology for endpoint and cloud for the quick containment of attacks and ability to share threat intelligence with partner institutions. He says, "the adoption of Microsoft stack and the security suite has been a game changer for The Ottawa Hospital. Not only has it helped us to improve our security posture, but it helped us save time by eliminating non-value-added tasks such as finding storage space for the database that supports Sharepoint; that time could be reinvested in value-added initiative such as automation. Azure deals with all of that so we were able to focus on helping our end-users continue to work securely."

A modern cyber-security plan helps organizations stay productive and resilient. The key to remaining secure and productive is a zero-trust approach that authenticates, authorizes, and encrypts every access request. Organizations should also take advantage of AI and automation to free up security and IT teams. They will then have more time to focus on value-add work, delivering increased innovation to the organization.

Prioritizing threat intelligence sharing: Lemonde also emphasizes that one of the keys to resilience is recognizing that no institution is a stand-alone entity. The entire healthcare system is interdependent, and each institution is affected by the other. Therefore, a common platform for sharing threat intelligence should be a priority.

The Ottawa Hospital has offered partner institutions the opportunity to join their Microsoft 365 tenant, with access to all automation technology and sophisticated Microsoft Defender services. This allows their network of healthcare institutions to share and access threat intelligence to cultivate a collective, robust security posture.

> **If the right technology isn't leveraged, cyberattacks can have a lasting impact and impede the important work of our healthcare providers.**

Sharing threat intelligence is so much more important now than ever before due to the interconnectivity of systems, and the use of shared Wi-Fi and IoT devices. Allowing partner institutions access to this intel keeps cyber leaders informed of suspicious network activity, allows them to avoid making the same mistakes their peers made and to deploy proven cyber defense solutions.

Through the Cyber Threat Intelligence Program (CTIP), Microsoft provides law enforcement, government Computer Emergency Response Teams (CERTs), ISPs and government agencies responsible for the enforcement of cyber laws and the protection of critical infrastructure with better insights into criminal cyber infrastructure located within their jurisdiction, as well as a view of compromised computers and victims impacted by such criminal infrastructure. The CTIP aims to strengthen countries' digital borders and infrastructure security against cyber threats.

Fostering a culture of security: Another key learning that Lemonde shares is that fostering a culture of cyber security awareness within the organization is a significant part of mitigation. He mentions that he leans on leadership to inform and educate their teams on security best practices to help them understand how their digital actions could have consequences for the institution's security.

Creating a culture where everyone takes accountability for defending the enterprise against cybercrime will require that we get everyone engaged and aware of the day-to-day risks so they know how their actions and choices can mitigate, or increase, those risks. Ultimately, it comes down to leaders. Those in management who have the decision-making power must implement the right training, technologies and security solutions to avoid potentially disastrous situations.

Lemonde ends with the sentiment that service management, understanding potential risks and institutional collaboration are essential in staying ahead of the next cyber threat and will help the organization improve value for their users.

Organizations need to be protected against inevitable modern threats that come with digital transformation. By leveraging the right technology, healthcare organizations can prevent and detect attacks across all touchpoints to protect themselves and their patients.

To learn more about the Ottawa Hospital's cybersecurity transformation, please watch the full webinar here.

Peter Jones is Healthcare Industry Lead, Microsoft Canada.

VIEWPOINT

COVID, growing costs, and clinician burnout require the improved use of data

Implemented effectively, electronic systems can reduce the time clinicians spend on administration.

BY SONIA PAGLIAROLI

Over the last decade, the need for a clinical voice at the heart of digital health has become increasingly recognized. This is a marked shift; whereas previously, using technology was viewed as the goal, the reality is that technology and data are enablers to achieving the goal.

Digital health solutions deliver process transformation, service integration, and the implementation of evidence-based care pathways. Nurses, however – particularly Chief Nursing Information Officers (CNIOs) – play a critical role in care delivery as they're tasked with leveraging digital platforms and tools in all care settings.

The COVID-19 pandemic was a pivotal moment during which the importance of healthcare data was realized. The pandemic amplified the need to manage and mitigate the impacts of unprecedented healthcare demand. It also required the rapid reconfiguration of services. Worldwide, organizations that had already implemented multidisciplinary teams around digital innovation were better prepared for the speed of change necessitated by the pandemic.

We know the healthcare system is under extreme pressure and requires changes to be made. According to the Canadian Institute for Health Information (CIHI), healthcare costs represent 12.7 percent of GDP. There's also a $1 billion financial hangover due to special COVID-19 investments and a massive surgery backlog.

Alongside the financial cost, the workforce has come under increasing strain, with a recent study by the Canadian Medical Association finding that 53 percent of clinicians are now experiencing burnout. While the Canadian healthcare system has largely coped, the repercussions from delays to treatment and reduced access to care will be felt for years. It's time for transformative action.

Meaningful action will rely on smarter – and better – use of data. Canada's use of digital platforms is far from uniform, and the use of unified data to effectively improve practice across healthcare networks is sporadic. As we learn from the best, domestically and internationally, the need for data and rapid technology adoption is necessary to identify variance and inefficiencies.

Digital platforms also enable us to use data to monitor a patient through treatment and to identify those at high risk of chronic conditions within the broader population.

Canada has already shown the potential for data mobility to allow for care delivery outside hospitals, providing a better experience for patients and those close to them. Island Health in British Columbia has been highly successful in the provision of the hospital at home, providing hospital-level care by a mobile team of nurses and physicians within the person's own home. Therapies and tests are also provided at home, freeing acute staff and beds for the highest acuity conditions and reducing the pressure on caregivers and facilities.

> **The workforce has come under increasing strain; a recent study by the CMA found that 53 percent of clinicians are now experiencing burnout.**

Registered nurses in the Canadian healthcare system outnumber physicians by nearly five to one, according to 2019 OECD data. To effect real change and recover from the pandemic-induced backlog, it's critical to maximize the productivity of nursing staff, minimize burnout in the workforce, and truly consider the role of the nurse in system design.

Sonia Pagliaroli is CNO, Director and Nursing Executive, Canada, with Oracle Cerner.

Within Canada there are existing innovations in nursing that tackle the challenges described above. By increasing nurses' access to digital platforms – a 2020 survey by Canada Health Infoway found that 27 percent of nurses now work entirely in digital platforms – the opportunity to maximize the value of data and efficiencies in data collection are more easily realized.

For example, the implementation of the Essential Clinical Dataset (ECD) in Island Health in 2019 – using Oracle Cerner solutions – redirected 96.5 hours per month of nursing time from charting to patient care. The process of evaluating all previously gathered datapoints in the admission history forms was thorough; determining the value of each data element across the full care pathway requires end-to-end review. The outcomes, however, reduced nurses' time in the patient record, lessened workload, and improved data quality – eliciting an overwhelmingly positive response amongst providers across the organization.

System redesign and transformation is a multidisciplinary exercise impacting all care providers and therefore requiring a voice from all stakeholders. It's necessary to reflect on the specific need for nursing, and in doing so to officially recognize the role of the CNIO within an organization. The CNIO is crucial in distilling diverse feedback and nursing practices across settings to ensure system design is conducted in partnership with those delivering care, rather than imposed from above.

As health systems worldwide enter a new wave of demand-led system transformation, the role of the CNIO is one that all organizations should consider critical to maximizing the value of digital investment – and one that is increasingly critical to future success.

England wants to quickly expand the use of virtual wards

It appears that England is moving ahead quickly to establish a significant "Hospital at Home" or "Virtual Ward" component to reduce pressures on hospitals and provide patients with the opportunity to recover in the comfort of their own residences.

The NHS England has asked its Integrated Care Systems (ICSs) to deliver virtual ward capacity equivalent to 40 to 50 'beds' per 100,000 population – the equivalent to the delivery of up to 24,000 virtual ward beds – by December 2023.

An Integrated Care System (ICS) is the partnership of organizations that jointly plan and deliver healthcare services in regions in England.

In July 2022, 42 ICSs were established across the country. According to the NHS England guidance document, "At a minimum, we expect each system to implement virtual ward models for the two pathways (acute respiratory infection, frailty) defined in the previous supporting information.

Systems are free to expand and develop other pathways, in addition. Virtual ward services are to be developed across systems and provider collaboratives, rather than within individual institutions.

Services can be based on partnership between secondary, community, primary, social care and mental health services and in many cases partnerships with the independent sector.

The NHS said that virtual ward services should be tech-enabled to maximize the opportunity they offer for patients, carers, and staff. Technology enablement means the management of patients via a digital platform managed remotely by a clinical team. According to the NHS, "Virtual ward services will only be successful if they combine all the above in creating an integrated care model. Hence it will be the first test of ICSs, as they are established, to deliver a new multi-agency approach to caring for people in their own homes or usual place of residence. In order to achieve scale, systems will need to think about virtual wards on a whole system basis and whether they are best delivered on a whole ICB footprint or in partnerships with other ICBs."

> **The NHS is making £200 million available for virtual wards in 2022/23 and £250 million in 2023/24.**

The funding for the project is formidable: The NHS is making £200 million available from the Service Development Fund (SDF) in 2022/23 and £250 million, on a match-funded basis, in 2023/24.

Interoperability: we're not there yet, but recently, strides have been made

BY MICHAEL GREEN

Like most other countries, Canada is tackling interoperability – the ability of different IT systems with different infrastructures to share data, like patient health information, while preserving its original context. Health system data does not flow seamlessly across the care continuum, whether care is delivered in-person or virtually. Provider and patient access to a comprehensive health record is limited and information is often not available in a standardized, timely and comparable way for health system management.

Despite huge progress in digital health in Canada over the past 20 years, these issues with the exchange of patient health information persist, especially during transitions of care.

For patients, gaps in their information can delay care and create safety issues that can have negative implications, such as adverse drug events or the need for hospital readmissions. Patients are also impacted by wait lists fueled by inefficiencies.

Michael Green

For clinicians, these gaps take up precious time and contribute to burnout. Health systems are burdened as a result of poor information exchange, duplication of tests, unnecessary appointments and hospitalizations, and other inefficiencies. While electronic health records and related connected health information initiatives have led to significant improvements in these areas, Infoway estimates that $3 billion in potential benefits could be realized annually through greater interoperability.

A recent Infoway survey of more than 800 Canadian clinicians (general practitioners and family physicians, specialists, nurses and allied health professionals) found that, on average, about two-thirds of them can usually obtain patient information from outside their practice quickly and efficiently, and in a way that easily integrates with their system. However, they reported spending approximately 40 minutes a day beyond what should be spent searching for patient information.

Not surprisingly, the clinicians surveyed are overwhelmingly in favour of greater interoperability. Ninety-two percent said having more complete, timely and accurate information at their disposal would enable safer patient care; 88 percent said it would improve their ability to collaborate and coordinate care with providers outside their practice; and 85 percent said it would increase their productivity.

Patients also want improved interoperability. Most have likely never heard that term, but they know they want to access health services, and their personal health information, online. They want the information all in one place, they want to access it quickly, and they want to share it with those in their circle of care. That requires better interoperability.

According to Infoway surveys, 93 percent of Canadians would like to receive their lab results immediately. Of those who are able to access their health information online, 88 percent said they are more informed about their health, and 82 percent said they are better able to manage their health.

So, what are Infoway and our partners doing to respond to the needs of clinicians, patients and the health system?

During the past year, Infoway established an active collaborative framework that engages jurisdictions, clinicians, other Pan-Canadian Health Organizations, industry and the broader health sector. We continued to publish and support data and terminology standards that are the foundation of digital health systems across Canada.

We cultivated pan-Canadian governance with participating jurisdictions (Ontario, British Columbia, Alberta, Saskatchewan and

CONTINUED ON PAGE 19

Organizations are breaking down the silos, linking acute, primary and community care

I.T. systems are used to share patient information through different stages of the journey.

BY DIANNE DANIEL

In her version of an ideal world, Niagara Health System (NHS) CIO and vice-president, Diagnostics, Sonali Kohli would like patient data to be seamless between acute care and community care settings across Ontario's Niagara region, allowing family physicians, community agencies, hospital clinicians, specialists and social workers to base their care decisions on a single, fully integrated picture of a patient's health journey.

Following a recent ramp up of new digital services at NHS – led by the Niagara Ontario Health Team – Équipe Santé Ontario Niagara (NOHT-ESON) Digital Health Working Group – that vision is "baby steps" closer to reality, she said.

"We've started it. We've proven it. Now we're seeing where we can expand it," said Kohli.

NOHT-ESON's over-arching goal is to help patients experience easier transitions as they move between hospital and community care providers, supported by one patient story, one patient record and one care plan. The Digital Health Working Group, chaired by Kohli and Niagara Medical Group Family Health Team executive director Frank Ruberto, is playing a significant role by working to connect various health teams and services, one initiative at a time but always with a view to expand by making those connections equitable and sustainable.

The new digital services include online appointment booking by patients for family doctor appointments, with 15 primary care physicians already participating and another 85 expected to sign on this year; remote care monitoring of some of the most vulnerable patient populations at home, starting with COVID and palliative patients and supported by the Cloud DX Connected Health platform; e-referral for diagnostic imaging tests, using the Ocean eReferral Network subsidized by the Ontario government; and, virtual urgent care services, available to patients who don't have a family doctor through urgentcareontario.ca.

All initiatives are funded through the Ontario Ministry of Health and Long-Term Care and supported by partners, including Ontario Health, Hospice Niagara, Home and Community Care and the Niagara Practitioners Healthcare Alliance (NPHA).

Ruberto calls it a "slow and steady rollout" as the NHS works towards an integrated care model that will bring primary care, acute care and home and community care together as one collaborative team. To start, the working group completed an environmental scan and inventory of systems already in place throughout the NOHT-ESON to make sure any new technology selected would support interconnectivity between disparate systems already in place.

They are also focusing on health equity, "making sure everyone is receiving a culturally appropriate and linguistically acceptable form of care," he said. For example, remote care monitoring of palliative patients includes the development of a new Indigenous-informed pathway reviewed by the Niagara Chapter of the Indigenous Health Network.

"We're also trying to educate that palliative is not end-of-life care; palliative care is a format of care, a framework," added Ruberto. "We're trying to help patients identify that it's a more holistic form of care where we can bring teams around them through integrated care and remote care monitoring."

Benefits of the digital services – which were up and running within three months of receiving funding – are evident even though the initial patient populations are small. Emergency room visits were reduced among COVID patients who received remote care monitoring because clinicians were able to intervene to prevent symptoms from escalating, for example, and the advantage of e-referrals for diagnostic imaging is that algorithms are now used to ensure the right test is ordered for the right patient, resulting in fewer errors and faster turnaround times.

Kohli expects the digital services will expand rapidly when NHS completes its planned transition to Cerner's cloud-based electronic hospital record (EHR) system. Future plans include adding connectivity to primary care physician systems, adding chronic disease management to remote care monitoring, and extending online appointment booking to youth mental health and addiction services.

"We're putting proof-of-concept digital tools in play and once (Cerner) is in, I can see this exploding and making that data so seamless, that patients are cared for with a full picture of data in their physician's hands," she said. "As they move outside of the hospital, through e-referral and remote care monitoring to all of these other tools, the data that patients have within the hospital will be shared within the community as well."

Interoperability between systems – supported by new application programming interfaces like Cerner Ignite and Fast Healthcare Interoperability Resources (FHIR) – is one method applied by Canadian healthcare providers to build integrated care pathways between acute and community care. Another approach involves extending the functionality of existing acute care systems outward. Either way, IT departments should be wary of introducing low-level transactional solutions that end up creating siloes of information, says Cerner Canada director, Population Health, Michael Billanti.

"What we want to do is develop an intelligent environment that allows people to not only connect and exchange data, but also standardize and deliver insights for workflow," explained Billanti.

"You can create a 'Here's how I order my diabetes refill kits and get them to the community faster' app – that's a great problem to solve," he added. "But wouldn't it be great to pull all of that data together to say not only do I know who my diabetics are, I can predict what they need, I know who's on plan and who's not, I can predict how many supplies I'm going to need … and I can predict who's pre-diabetic and who I can prevent from entering the system. That's the level of interoperability and integration we're looking to spawn."

Vancouver Coastal Health is using Cerner FirstNet as the common clinical information system for three of six urgent and primary care centres operating in the region, enabling clinicians at the centres to work from the same patient records as hospital clinicians. Cerner is also being used in community hospital and ambulatory care settings as part of a multi-year Clinical and Systems Transformation (CST) project to improve the safety, quality and consistency of patient care across Vancouver Coastal Health, Provincial Health Services and Providence Health Care. The goal is to establish standards, including workflows, order sets, clinical guidelines, integrated plans of care and a common electronic health record.

Dr. Eric Grafstein, CST chief medical information officer, said the hope is to create connectedness in the community space. "We have lots of discussion about what's better, being connected or best of breed. It's hard to have both and in the end, from a patient perspective, it's that interconnectedness that's so important," he said. "Every day we see the value of having that connected care."

When a patient is seen at one of the three urgent and primary care centres that uses Cerner – Northeast, Southeast or Richmond – and the treating clinician decides a visit to the ER is necessary, the ER doctor will be able to review the notes from the clinic visit to see what's going on when the patient arrives.

Similarly, if a patient with asthma or COPD is asked to follow up with a respiratory clinic, the urgent care physician automatically forwards their note to the appropriate respirologist and can check in

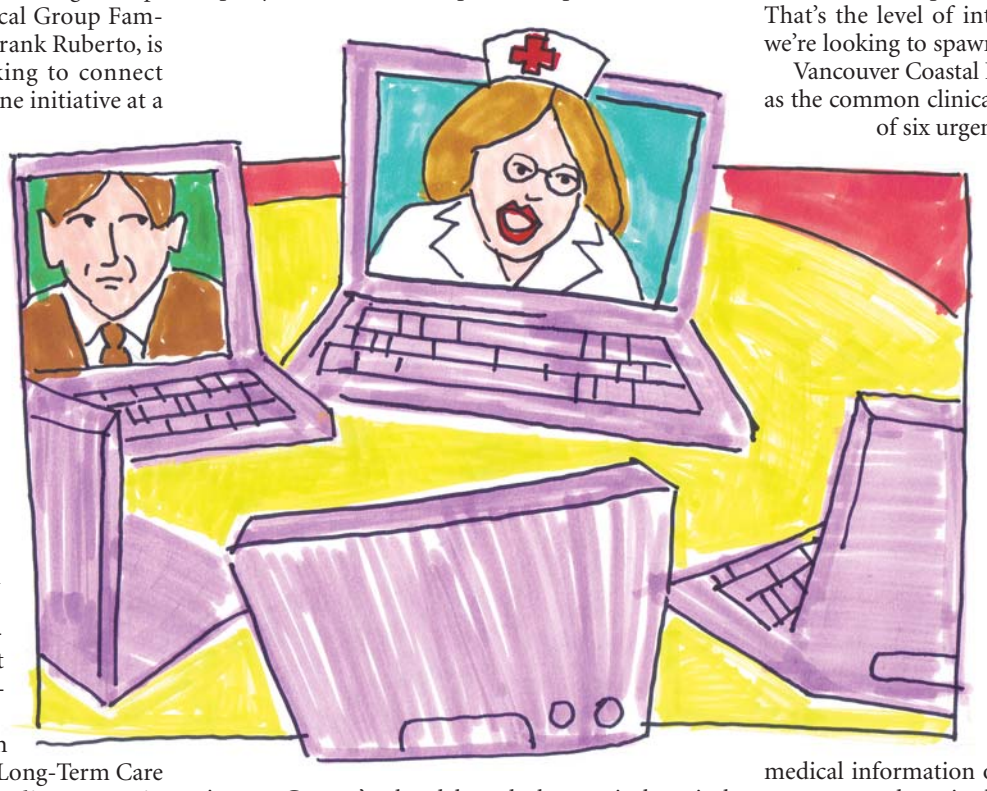


ILLUSTRATION: LINDA WEISS

later to see that the patient actually showed up for their appointment.

"Integration is a patient-centred approach to healthcare and that's what we're starting to do now and see the benefits of now," said Dr. Grafstein.

Island Health in Victoria B.C. is an example of an acute care facility extending its in-house technology outward, beyond brick and mortar hospital walls. In November 2020, following a formal stakeholder engagement process that included hearing from patients and caregivers as well as clinicians and administrators, Island Health launched one of Canada's first Hospital at Home (HaH) programs, enabling hospital-level care in the comfort of a patient's residence.

Registered patients are still admitted to hospital but receive their therapies and tests at home, including vital signs monitoring, supplemental oxygen, IV medications and lab work. They only visit the hospital as needed for diagnostics or procedures such as CT scans, X-rays, ECGs and transfusions, which are arranged by appointment.

A virtual call-bell was implemented so HaH patients have 24-hour access to their care team; however, its use has been paused as the team looks for an alternative solution. Patients also receive daily in-person visits supplemented by virtual visits, as needed. To be eligible, they must be 19 or older and meet certain clinical characteristics, including low risk of fall, expected length of stay of two weeks or less, requiring care for a known, reversible condition and no evidence of pain crisis, acute stroke or unstable psychiatric disorder, and they must live within a specified driving distance of a participating hospital.

"This is a novel program in Canada and we had to align everything we did with safety," said Dr. Sean Spina, coordinator of Clinical Services at Royal Jubilee Hospital and principal investigator of Alternatives to Traditional Hospital Care Offered in Monitored Environments (AT-HOME). "We are truly extending the walls and the capacity of the acute care system through this program," he added.

HaH operates like any other unit within the hospital, as if the 18 patient beds currently supported are down the hall instead of in homes throughout the community. Key to its success is a performance monitoring group that collects and analyzes data to assess the program in real time, and make adjustments to processes and policies as required.

For example, when the program first launched, patients were required to have a family caregiver at home with them. The ongoing evaluation process showed that in order to support health equity, it was safe to make an exception to that rule in certain situations. Patients were also required to have a refrigerator in order to take part in the beginning, whereas now they are provided one if needed.

Cerner PowerChart supports HaH just like any other hospital department. Because patients and their caregivers are expected to be active members of the care team, Island Health worked with Cerner to create a patient-friendly medication administration record (MAR) – using lay language for clarity – which is currently on paper and has been very well received. Moving forward, Dr. Spina expects to implement a digital MAR and perhaps an automated system for dispensing medications. He firmly believes the HaH model of care will transform the delivery of acute care services in Canada.

"The patients love it. The care teams enjoy delivering that type of care. And, it's cost effective in a publicly funded healthcare system," he said. "That's just a magical trio to move it forward."

Whether they're achieved by building point-to-point interfaces between systems, developing health information exchanges or extending the functionality of existing systems, integrated care systems require "open-minded thinking and the commitment to do what we need to do to break siloes down and think bigger," said Cerner Canada chief nursing officer Sonia Pagliaroli.

"We have to know who's in our community, who's at risk and who's vulnerable," said Pagliaroli. "I don't think technology has been the biggest barrier or challenge … we have to think more about the bigger picture, the person as a whole. Let's use social medicine and let's use data to inform the way we provide care."

Digitally empathic technology is critical in supporting mental health

DR. SANDY WHITEHOUSE

As a former adolescent physician and medical director of emergency services at BC Children's Hospital, I often worked in chaotic scenarios where decisions were made quickly based on the information at hand; I realized I was missing out on critical, sensitive data that had a direct impact on care.

Gaining truthful answers about delicate issues – such as drug use, sexuality, poverty, and other concerns – can be difficult. It is important to think of people's contextual environment: the way you're asking the questions, why you're asking them, or how you're going to be using the information.

And when people share this personal information with you, the greatest benefit is that clinicians can accurately and discreetly help solve the patient's problems.

Using digital empathy can change how we identify and treat people suffering with mental health and addiction problems.

But clinicians are already burnt out, overburdened, and pressed for time. Gathering this information through traditional means is more time-consuming and less effective than using technology.

The challenge is how to bring empathy, (this year's theme for mental health) into digital tools. Applying a new concept, digital empathy, can improve care for those suffering from mental health and addiction problems. Digital empathy applies the principles of empathy – compassion, cognition, and emotion – to user experience to improve results and efficiency. The goal of using digital empathy is to close critical communication gaps in healthcare, particularly when it comes to questions about gender, racial inequality, social determinants of health and mental health.

By incorporating digital empathy into the patient experience with validated screening assessments, clinicians receive higher quality data and increased patient engagement, leading to improved patient activation, better identification of actionable critical issues, and more appropriate treatment.

When healthcare providers have effective, empathetic, digital tools that reflect their values and care, there is a better quality of life for all. Using digital empathy can change how we identify and treat people suffering with mental health and addiction problems and help avert a crisis both for the patient and our communities.

As one example of an effective use of empathetic design in questionnaires, we can turn our attention to the McMaster Children's Hospital. The care team at McMaster Children's Hospital wanted to identify and manage those patients whose outcomes were at risk due to the psychosocial interplay between lifestyle and inflammatory bower disease (IBD).

Lifestyle and overall health have a significant impact on long-term outcomes for adolescents with chronic disease. One such chronic disease, Inflammatory Bowel Disease (IBD), a condition characterized by recurring chronic inflammation of the digestive tract, is particularly susceptible to psychosocial stressors.

The care team at McMaster Children's Hospital wanted to identify and manage those patients whose outcomes were at risk due to the psychosocial interplay between lifestyle and IBD. While they had a psychologist on their team there was no mechanism for identifying those at risk, and staff depended on patients self-identifying to access psychological care.

Dr. Sandy Whitehouse

The team was concerned that the lack of comprehensive data to consistently assess the emotional and social issues in their population was impeding their ability to make objective care decisions at the clinical level and to determine their resource utilization for psychological support at an operational level.

To systematically assess psychosocial risk amongst young patients with IBD, the care team at McMaster utilized the gold standard screening tool – the HEEADSS assessment (Home, Education, Eating, Activities, Drugs, Sexual health, Suicide), administered on Tickit's interactive and patient-centric platform.

Tickit was chosen based on its contemporary, graphically based, Digitally Empathetic design that resonated with youth. The ability to self-administer the questionnaire allowed teens a greater sense of confidentiality regarding sensitive topics, increasing responsiveness and data quality. A summary of results was available in real-time to attending physicians, highlighting and alerting areas of concern and maximizing physician's effectiveness during consultation regarding issues that required extra attention.

Of the 53 questionnaires administered on Tickit, there was a 99 percent completion rate, supporting the hypothesis that a patient-centric survey tool engages respondents and provides comprehensive population data capture.

- 11 percent of patients indicated suicidal thoughts in the past three months or provided a history of self-harm, supporting the value of screening to identify risk
- 63 percent of patients indicated a concern regarding where they would receive care beyond the age of 18, indicating current education materials regarding transition needed upgrading for better knowledge transfer
- 92 percent of patients found the questions easy to understand
- 94 percent of patients were comfortable with the content of the questions
- 92 percent of respondents thought the survey would be helpful to doctors and nurses caring for them

Dr. Sandy Whitehouse is CEO and CMO of Vancouver, BC based Tickit Health and a former medical director of emergency services at BC Children's Hospital.

Virtual Hallway addresses problem of wait times to see a specialist

BY DR. SUNNY MALHOTRA

Patients across Canada face substantial delays when accessing specialist care. With a national median wait time for all specialist referrals at 78 days, Canadian patients often spend upwards of three months waiting and wondering.

A trio of Nova Scotia physicians were challenged first-hand by this issue, observing that patients waiting too long for specialist consultations experienced more chronic, disabling conditions. In response, they created a solution: Virtual Hallway – a platform that connects primary care providers with local specialists to facilitate "live" telephone consultations.

Virtual Hallway was founded on the principle that specialist input earlier on in a course of illness could streamline a person's treatment and optimize their care.

"By enabling these conversations to happen more frequently, primary care providers gain actionable advice and patients get care sooner – reducing morbidity, often avoiding waitlists, all while being cared for by their provider that they know and trust," said Dr. Luke Napier, chief medical officer, Virtual Hallway.

The ease and speed of collaboration provided by Virtual Hallway supports more aligned and effective patient care, and benefits the healthcare system as a whole; from patients, family doctors, nurse practitioners to specialists. Virtual Hallway amplifies the impact specialists can have on their community, by directly facilitating knowledge sharing with primary care providers.

"It helps to strengthen and support the care that I provide to my patients. Virtual Hallway's specialist consults enable me to deliver more timely and effective care," said Sarah Colgan, nurse practitioner.

Once registered with Virtual Hallway, primary care providers can schedule a phone consultation with specialists who indicate their availability. Virtual Hallway facilitates finding the right specialist, scheduling, documentation and handles billing in accordance with provincial requirements.

"Virtual Hallway allows me to quickly run my clinical assessment and opinion past a specialist and jointly develop a safe management plan for my patient," said family physician Dr. Chohan. "Instead of waiting a year for a specialist to review the medications and advise, I have the information within days".

A major factor differentiating Virtual Hallway from competitors is that it enables primary care providers to gain conversational value by collaborating in real time, instilling confidence and collegiality amongst its users. Most other online consult platforms only allow users to communicate asynchronously via email.

"[The platform] creates more alignment with primary care, that way it's much easier to connect and document consultations," said Ontario-based specialist Dr. Medina. "The collaboration is a lot more streamlined, and it lends to better quality consultation".

Dr. Sunny Malhotra

Virtual Hallway has partnered with the Coordinated Accessible National (CAN) Health Network to build a strong market presence, as well as a sustainable technical and operational foundation. This partnership has promoted widespread growth opportunities and scalability across Canada, including partnerships with the National Research Council, Dalhousie University, Doctors Nova Scotia and Nova Scotia Health.

Collaborating with an array of stakeholder groups has enabled Virtual Hallway to design a platform that is regulatory sound and fulfills the practical needs of both primary care providers and specialists.

"This unique and innovative solution has the potential to reduce wait times and improve the healthcare experience for both patients and providers," says Dr. Gail Tomblin Murphy, vice president of Research, Innovation and Discovery, and chief nurse executive, Nova Scotia Health.

"We are proud to play a part in bringing healthcare providers together to solve the real-world healthcare challenge of expediting patient access to specialist care," said Justin Hartlen, CEO. "It's a win-win solution that is already improving patient outcomes today". Virtual Hallway continues to grow and has ambitious plans to see the benefits of their platform realized in health jurisdictions across Canada and the United States. Now used in Nova Scotia and Ontario, primary care providers have reported nearly 90 percent of Virtual Hallway consults avoid the need for specialist referrals.

Dr. Sunny (Vikrum) Malhotra is a US-trained sports cardiologist working in New York. He is the CEO of Cardiac Registry Support. www.cardiacregistrysupport.com. Twitter: @drsunnymalhotra

Politicians still shrugging off deficiencies of the healthcare system

TORONTO – Ontario's Health Minister, Sylvia Jones, has said the temporary closures of hospital ER departments across the province are not "unprecedented" and that there are "ebbs and flows of a high incidence of people who are taking vacation." Jones added that Ontario isn't facing a unique situation, and that jurisdictions across the country have been facing similar staffing challenges and department closures.

That didn't sit too well with Catherine Hoy, president of the Ontario Nurses Association, who responded that Jones's comments about nurse vacations were "disrespectful". In an interview with CBC News, Hoy said, "That is such an insult to my members, I can't believe it." She asserted that nurses have taken vacations in previous years that have not led to ER closures.

For its part, the ONA and other nursing groups have urged the government to roll-back legislation that capped wage increases for public sector workers – including nurses – for three years, saying it would help with recruitment and retention.

Ontario Health, which oversees the provincial health system, said Ontario hospitals were experiencing staff shortages at an "unprecedented" rate.

In recent weeks, a variety of medical organizations have issued recommendations for coping with staff shortages and department closures.

The Canadian Medical Association issued a news release stating:

"We know the health system is collapsing. Every day, there are more signs of distress." As examples, it cited the following:

• A hospital in Toronto put out an urgent plea for physicians, medical residents and other volunteers to help fill nursing shifts to keep its emergency department running.

• Hospitals in rural communities across Canada are so short staffed they have temporarily closed emergency departments and intensive care units.

• A patient in Victoria placed an ad in the newspaper pleading for a doctor – any doctor – to renew prescriptions for her 82-year-old husband after their family practitioner retired.

• A family physician published his own perspective in the *Ottawa Citizen* – an open letter apologizing to patients for the broken healthcare system."

Clearly, the problems in healthcare predate the summer department closings. For years, we've been hearing predictions about the number of retirements of nurses and physicians outpacing the numbers of new doctors and nurses. Meanwhile, the population of Canada has been aging. We've also heard about the "grey tsunami" that threatens to overwhelm the healthcare system. We know, after all, that people face most of their healthcare challenges in their later years.

For its part, the CMA offered some sensible solutions:

• Expanding team-based care so more Canadians have timely access to family doctors and other primary care practitioners.

> **The CMA is asking for a national health human resource strategy to rebuild Canada's healthcare workforce.**

• Creating a national health human resource strategy to rebuild Canada's health care workforce in a proactive and sustainable way.

• Improving workforce data collection across health systems to track ongoing gaps and progress.

• Investing in new training and education infrastructure to increase the supply of physicians, nurses and nurse practitioners.

• Introducing pan-Canadian licensure to make physicians more mobile – potentially easing pressure on rural and remote communities and allowing for more nimble crisis response, among other benefits.

• Scaling up virtual care and leveraging the promise of artificial intelligence to improve access to care.

In a recent news release, the president of the Canadian Nurses Association, Sylvain Brousseau, said: "We are seeing patients in Canada facing longer and longer wait times for medical and surgical procedures, while also facing increasing challenges to access the care they need.

"Just over these past few weeks, we have witnessed many stories of emergency departments shutting down or reducing their hours of operation in many parts of the country. The reason for this crisis is very clear: Canada is facing a severe health workforce crisis and nursing shortages.

"Canada needs to ramp up its healthcare system to deliver better outcomes for patients and ensure they can receive the care they need when they need it," said Brousseau.

Interoperability: not there, but strides made

CONTINUED FROM PAGE 15

Newfoundland and Labrador) for interoperability that supports and facilitates common goals. And we worked with stakeholders to develop an initial set of pan-Canadian technical requirements for a Patient Summary initiative that will enable different digital health solutions to exchange health data and enable healthcare providers to better support patients with integrated transitions of care.

We also hosted our first pan-Canadian Projectathon, where more than 40 representatives of vendors, jurisdictions and other stakeholders came together to test the first version of the pan-Canadian Patient Summary Interoperability Specifications. This is a significant milestone in Canada's interoperability journey.

However, end-to-end interoperability is a continuous, multi-year journey that will require coordinated effort and investment. We are on the right path, and Infoway and our partners are committed to this journey that will improve efficiencies for clinicians and our health system, and ensure the delivery of safe, effective healthcare for Canadians.

Michael Green is President and CEO, Canada Health Infoway.

No blame, no shame

CONTINUED FROM PAGE 12

with errors identified and corrected before the report is distributed.

The system is designed to develop a collaborative approach, increasing radiologist participation and engagement, with regular on-line rounds where discrepancies and great catches are presented, supported by literature, to promote a learning culture where the group as a whole benefits from the acquired knowledge.

At the last SIIM meeting, in June, we presented the anonymous, prospective and timed retrospective, multi-institutional cloud-based Peer Learning solution that we recently implemented at Hamilton Health Sciences and St. Joseph Healthcare, deployed for a group of close to 80 radiologists and nuclear medicine physicians.

Implemented with the support of senior administration, PACS/IT management and Privacy and Legal, the radiology quality leadership developed a robust governance structure and rigorous and unbiased processes to ensure a successful deployment. The adoption has been excellent and the attendance to rounds beyond expectations.

In conclusion, errors will happen, and this is inevitable. We can decrease the rate of errors and their impact in implementing a quality culture where radiologists communicate their errors anonymously, without fear of blame or punishment in the best interest of all. The whole group benefits from each individual experience and the overall quality improves. This is the goal of Peer Learning in a spirit of Just Culture.

> **Errors will happen, but we can decrease the rate of errors by implementing a learning culture.**

David Koff is Professor Emeritus, Department of Radiology, McMaster University in Hamilton, Ont.

SE Health expands its MySE Life app

CONTINUED FROM PAGE 2

ting its people on the same page; if I decide to go into nursing, I have a solid foundation for where I'm going."

"We are continuing to invest in our Personal Support Care Program and are deeply committed to giving our personal support staff what they need to deliver the best care in our communities, at all times," said Blanche Durocher, director of Personal Support Care at SE Health. "That commitment includes having the client knowledge they need so they can advocate for their clients and share feedback with the interdisciplinary team," she added. "They can also look back and offer context about a client to a colleague if need be. As a result, they feel more a part of the care team and that translates into exceptional care delivery."

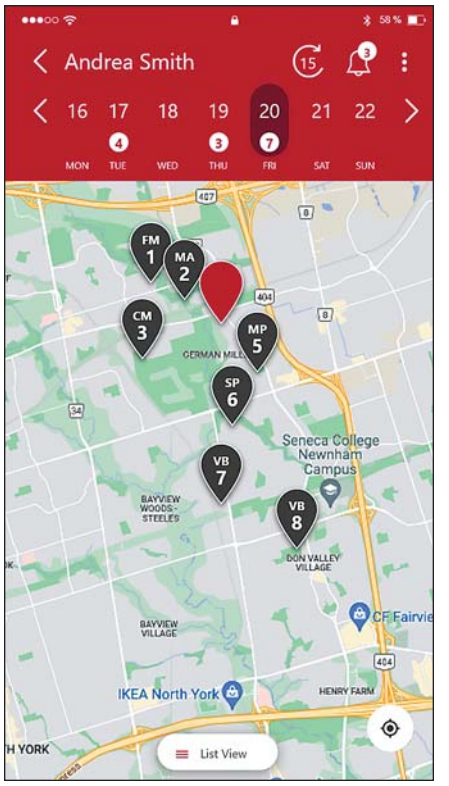
The app is also giving personal support staff the ability to reorganize their working day, so it's laid out the way they want to see their clients. They have access to "map view" – so they can pinpoint all client visits on a map – and client emergency contacts, which saves them time from having to search in many places for this information.

"It's the total experience," explained Ahmed. "We started with nursing, but our focus is direct-care providers and going beyond the individual experience to look at the full care-team perspective. We are committed to enhancing everyone's experience together and the MySE Life app is just one of the many ways we're doing that."

But that's not all. As Ahmed explained, the app is built on a digital platform with "open architecture" at the heart, and the team is looking at expanding the use of the MySE Life platform for all clinical and non-clinical staff across the organization.

"The MySE Life app product team is fully agile which allows us to pivot very quickly based on real feedback and changing business needs," he noted. "The potential for development is unbelievable and the vision is truly in the name: MySE Life, my journey, my experience and my professional development – it will become the hub for 'My life' at SE Health. We are so excited for what's to come."

As Ahmed and his team look to the future and expanding the app to include rehabilitation staff, direct care providers like Gerryts and her colleagues are reveling in how far they've come since the beginning and the seamless experience the app provides every day.



"Together, our teams turned delivering care into a technology piece, which is necessary these days. Now, I will never go back to the old ways; MySE Life is my future."

Sarah Quadri is Director, Corporate Communications, at SE Health.

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